

ZoomAir™ IG-4150

Model 4150

**Installation Guide
&
Reference Manual**

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1

About the ZoomAir IG-4150

Product and Documentation Overview

ZoomAir wireless LAN products incorporate the latest networking technology to offer you an easy and inexpensive way to build a wireless network in your home or office. This manual introduces you to the ZoomAir IG-4150 Internet Gateway, model 4150. It describes all the features and the most common configurations of the Gateway.

Box Contents

Your IG box contains the following components:

- ZoomAir IG-4150 unit
- ZoomAir IG-4150 documentation package, including:
 - User's Manual (this document)
 - Quick Start Guide
 - WEP Booklet
 - Technical Support/Warranty Flyer
- ZoomAir CD-ROM (for contents, see the next section)
- Telephone cable
- Power cube
- CD-ROM Contents

The following are the contents of your ZoomAir CD:

- ZoomAir IG-4150 Setup Utility software
- User's Manual, Quick Start Guide, and WEP Booklet (in .pdf format)
- Internet security software
 - ZoneAlarm Firewall software
 - ZoneAlarm Pro (30-day trial) Firewall software
 - AdSubtract ad-blocking software
- Customer support information
- Frequently asked questions (FAQ)
- Electronic warranty registration
- Technical support and warranty information

Manual Summary

Chapters 2 through 5 explain how to make the IG-4150 operational. Chapters 6 and 7 and the appendices contain useful information that is not essential for getting your IG-4150 to work.

Below is a summary of the IG-4150 installation. The manual is organized in the same sequence. For installation instructions, skip to Chapter 2.

- 1** Connect the cables to establish an Internet, LAN, or WAN connection (Chapter 2).
- 2** Power up the IG-4150 unit (Chapter 2).
- 3** Install a Wireless Client on a computer on your network. You will use the same Client and computer to select a mode for the IG-4150 and configure it.
Note: See the manual for your Wireless Client.
- 4** Using the Wireless Client from the same computer, install the IG-4150 Setup Utility (Chapter 3).

- 5** Select a mode for the IG-4150 and configure its settings using the Setup Utility.

Note: The IG-4150 is in the factory default mode – Cable Modem. You can change the mode when you configure the device (Chapter 4 or 5).

Network Options Overview

The IG-4150 is a Base Station that routes communication between wireless computers and the Internet and/or other computer networks.

You can use the IG to provide wireless Internet access and wireless LAN or WAN communication in several ways. In this manual, we refer to each method as a mode:

- Via Cable modem (the IG-4150 factory default mode)
- Via Telephone Line using the built-in 56K/V.90 modem
- Via ADSL modem (with PPPoE)
- Via ISDN/DSL device (for example, VDSL, HDSL, IDSL, SDSL, and others)
- Via LAN Infrastructure
- Via [No Internet], if you do not want to use your IG-4150 for wireless Internet access (For instance, you may simply want to connect the IG-4150 to your wired Ethernet network.)

2

Connecting and Powering Up the IG-4150

The first step in getting your IG-4150 to work is to connect the cables and power up the unit as described in this chapter.

Connecting the Cables

Follow these steps:

- 1** Press the latches and remove the cover of the IG.
- 2** Plug the power connector into the power socket on the IG unit.
- 3** Connect the cable for Internet access:
 - For Wireless Internet Access via Telephone Line, plug one end of the RJ-11 telephone cable into socket **a** (as illustrated on the next page) and the other end into a telephone outlet.

In some countries outside North America, you may need an adapter plug to connect the cable to the outlet.

- For Wireless Internet Access via External Devices (ADSL/PPPoE, Cable, ISDN/DSL modems) or if you are using a 10BT LAN, plug an RJ-45 Ethernet cable into socket **b**. Then connect the other end of the cable to the External Device.



Note: Telephone adapter plugs and the Ethernet cable are available at your local computer dealer. See Appendix A for information about cable and connector types.

- 4** Place the unit on a flat surface and route the cables through the cable entrance.
- 5** Close the cover by attaching it to the unit and pressing the latches.





Powering Up the Unit

- 1** Plug the power adapter into an AC power outlet.



CAUTION: After connecting power to the IG, do not cover the unit or block the airflow to the unit with any other objects.

- 2** Monitor the LED activity on the unit. The LEDs change color from Yellow to Red to Green to indicate *start-up* diagnostics. *When finished* (after approximately 30 seconds), the IG shows LED activity as listed in the table on the next page.

Icon	Name	Activity	Description
	Power	Steady Green	Power enabled.
	Wireless	Flashing Green	Wireless activity between the IG and wireless stations.
		Off	No communication.
	Ethernet	Flashing Green	Communication between the IG and the wired Ethernet equipment (Cable or DSL modem).
		Off	No communication.
	IG-4150 Modem	Flashing Green	Modem activity between the IG and your phone line.
		Off	No communication.

Next, install the IG-4150 Setup Utility as described in Chapter 3.

3

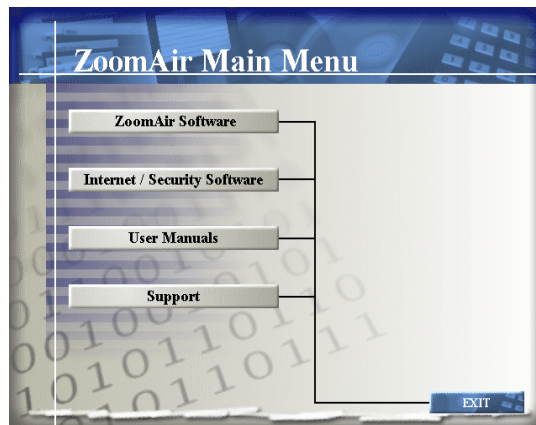
Installing the IG-4150 Setup Utility

Installing the Utility

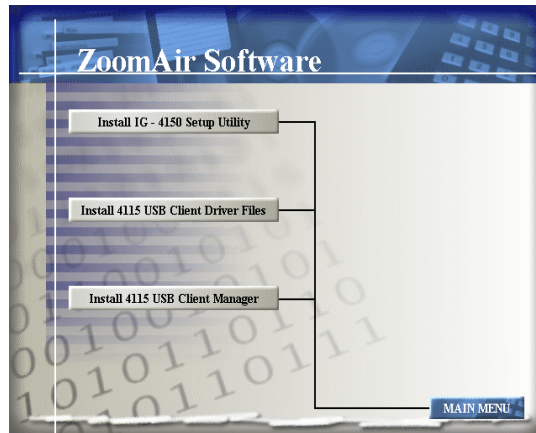
Note: At this point, you should have installed a Wireless Client on at least one computer on your network (see the documentation for the Wireless Client). You will use this computer and the connected Wireless Client to install the IG-4150 Setup Utility.

After you have connected the cables to your IG-4150 and powered up the unit, you must install the IG-4150 Setup Utility on a computer on your network to change the IG's settings. Follow the installation procedure described below:

- 1** Insert your ZoomAir CD in the CD-ROM drive of the computer that has the Wireless Client installed. The CD runs automatically. The **ZoomAir Main Menu** opens:



- 2** Click **ZoomAir Software**. In the **ZoomAir Software** screen, click **Install IG-4150 Setup Utility**.



- 3** Follow the prompts. In the **Question** dialog box, click **Yes** to install Java Runtime Environment 1.3.

At the end of the IG Setup Utility installation, the **IG Setup Utility** icon appears on your desktop.

Read the next chapter for instructions on how to configure the IG.



WARNING: You must exit the IG-4150 Setup Utility if you have to unplug the device for any reason.

IG-4150 Setup Utility: Other Functions

The remainder of this chapter contains information that is not essential for installing the IG-4150, but you may find it useful later as you use your IG. If you would like, you can skip to Chapter 4.

View/Modify IG-4150 Settings

The IG Setup Utility allows you to view or modify the following network settings:

- Internet Access Settings
- Wireless Connection Settings

Internet Access Settings

To set up your IG-4150 for Dial-Up Internet access you need information from your Internet Service Provider (ISP), such as user name, password, telephone number and IP address.

Next, select how you wish to connect to your ISP:

- Wireless Internet Access via Telephone Line
- Wireless Internet Access via External Devices

Follow the instructions on your screen, or click **Help** for more information.

Wireless Connection Settings

Change these settings to increase the security of your wireless network. Set up special connection requirements and improve your wireless communication.

Wireless Channel

To transmit and receive data, the IG-4150 uses a frequency channel. If neighboring wireless networks are using the same channel, you may experience poor performance. Try other channels until you find one that allows the best performance.

Finding More Information

For more detailed information, consult the following sources:

- The FAQ (Frequently Asked Questions) section of your ZoomAir CD. This section contains detailed instructions. Access it from the Main Menu by clicking the **FAQ** button.
- The ZoomAir IG context-sensitive Help. Click the **Help** button on the screens of your IG Setup Utility.

4

Configuring Typical IG Settings

Introduction

Note: You need to configure your IG only once, the first time you use it.

After you have installed the IG-4150 Setup Utility (see Chapter 3), you must select a mode for the IG and configure it. To configure the IG, you will use a computer with a Wireless Client installed.

The key aspect of the IG-4150 configuration is selecting a mode in which you want the device to operate.

In this chapter, we explain the typical configuration of the IG-4150 in all modes. Chapter 5 contains information regarding custom security configurations in all modes.

Cable modem is the factory default mode for the IG-4150.

Configuring the Settings

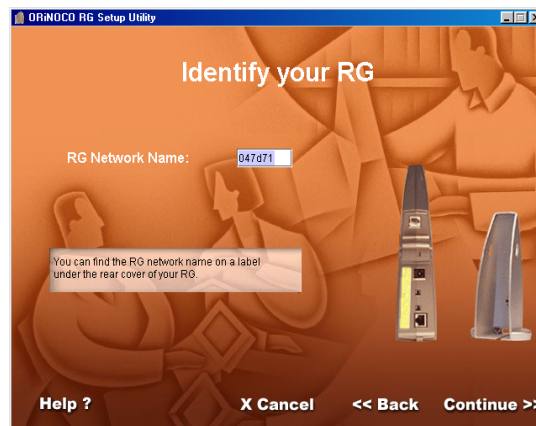
- 1 Double-click the **IG Setup Utility** icon on your desktop. The **Welcome** screen appears, as shown on the next page. For **Type of installation**, select **Typical** and click **Continue**.

If you want to change the default WEP Encryption Key to maximize the security of your network, go to Chapter 5 for instructions on configuring the custom settings.

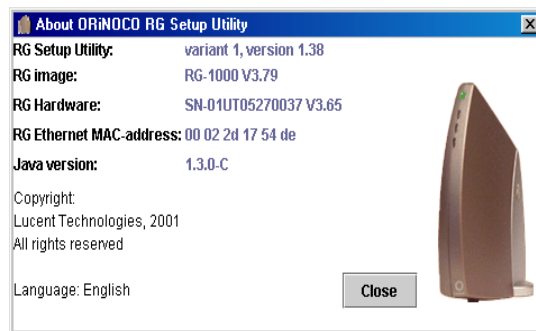


- 2 In the **Identify your IG** screen, enter the ID number of your IG unit in the **IG Network Name** text box. The ID number is the 6-character Network Name printed on the bottom and back labels on the IG unit. Any letters in the ID must be lowercase. Click **Continue**.

Note: After you have identified your IG-4150, you may be instructed to upgrade the firmware on your device. Refer to Appendix B for more information.



- 3** After you have identified your IG, press the **F12** key to check your IG Ethernet MAC-address. The following window will open. Write down the MAC-address on the last page of this manual. Your cable service provider will ask for it, and you may need it if you contact Technical Support or Customer Service. Click **Close**.



4 In the **Setup your Internet Connection** screen, select the country in which you are located, and select a method of Internet access. Your options are:

- Cable modem (factory default mode; see below)
- Telephone line (see **page 22**)
- ADSL/PPPoE (see **page 24**)
- ISDN/DSL device (see **page 26**)
- LAN infrastructure (see **page 28**)

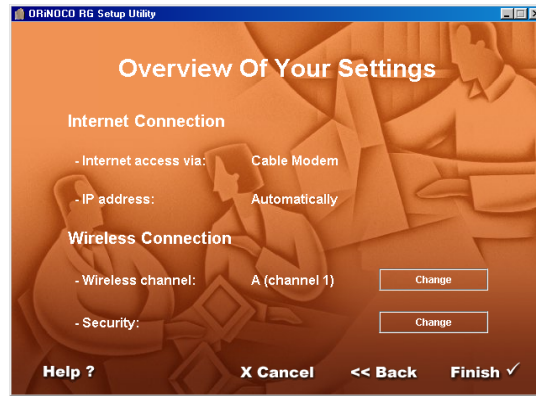
Internet Access via Cable Modem

If you want to access the Internet through a cable modem (the factory default mode), follow this procedure to configure your IG:

1 In the **Setup your Internet Connection** screen, select **Cable Modem** under **Internet access via**, and then select **Automatic** under **IP address**. Click **Continue**.



- 2** Click **Continue** in the **Overview Of Your Settings** screen:



- 3** Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

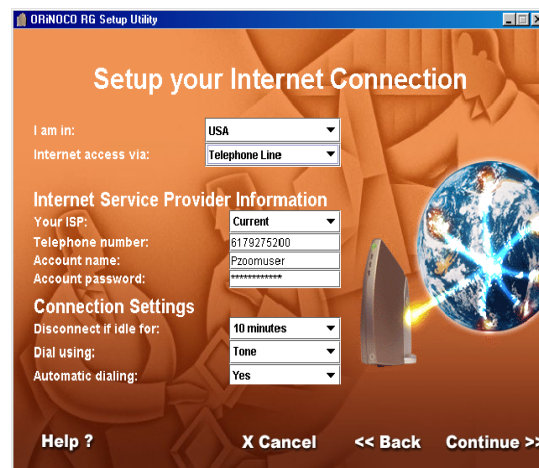
- 4** Click **Exit** in the **Ready!** screen:

You have configured your IG to connect to the Internet in the Cable Modem mode. Go to Checking the IP Address on **page 29**.

Internet Access via Telephone Line

If you want to access the Internet over a telephone line, the procedure for configuring your IG is as follows:

- 1 In the **Setup your Internet Connection** screen, select **Telephone Line** under **Internet access via**. The screen changes as follows:



ORANOCO RG Setup Utility

Setup your Internet Connection

I am in:

Internet access via:

Internet Service Provider Information

Your ISP:

Telephone number:

Account name:

Account password:

Connection Settings

Disconnect if idle for:

Dial using:

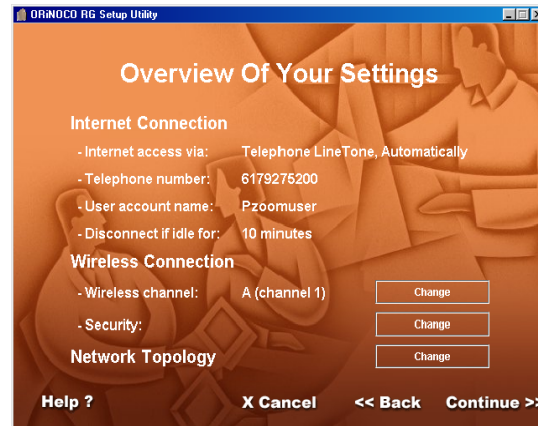
Automatic dialing:

Help ? **X Cancel** **<< Back** **Continue >>**

In the **Disconnect if idle for** drop-down menu, your options range from 1 to 40 minutes. Under **Dial using**, you can select **Tone** or **Pulse**. Finally, you can select automatic dialing. Click **Continue**.

For additional information, click the **Help** button.

- 2** The **Overview Of Your Settings** screen appears, showing your current settings. Click **Continue**.



- 3** Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

- 4** Click **Exit** in the **Ready!** screen:

You have configured your IG to connect to the Internet in the Telephone Line mode. Proceed to Checking the IP Address on page 29.

Internet Access via ADSL (PPPoE)

If you want to connect to the Internet using ADSL with PPPoE, follow this procedure:

- 1 In the **Setup your Internet Connection** screen, select **ADSL (PPPoE)** under **Internet access via**. The screen changes as follows:

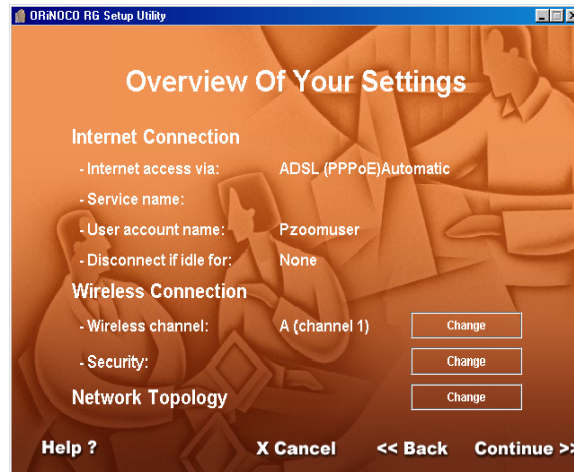


Under **Connection**, you can select **Automatic**, **Continuous**, or **On Request**.

Under **Disconnect if idle for**, your options range from 1-40 minutes. Click **Continue**.

For more information on these options, click **Help**.

- 2** The **Overview Of Your Settings** screen appears, showing your current settings. Click **Continue**.



For more information, click **Help**. If you want to change the settings in the dialog box, contact your network administrator.

- 3** Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

- 4** Click **Exit** in the **Ready!** screen:

You have configured your IG to connect to the Internet in the ADSL with PPPoE mode. Proceed to Checking the IP Address on page 29.

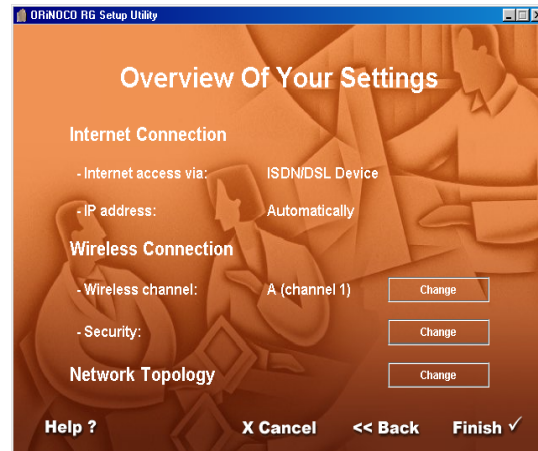
Internet Access via ISDN/DSL

If you want to access the Internet using an ISDN/DSL device, the procedure for configuring your IG is as follows:

- 1 In the **Setup your Internet Connection** screen, select **ISDN/DSL Device** under **Internet access via**, and then click **Automatic** under **IP address**. Click **Continue**.



- 2** Click **Continue** in the **Overview Of Your Settings** screen:



For more information, click **Help**. If you want to change the settings in the dialog box, contact your network administrator.

- 3** Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

- 4** Click **Exit** in the **Ready!** screen:

You have configured your IG to connect to the Internet in the ISDN/DSL mode. Go to Checking the IP Address on **page 29**.

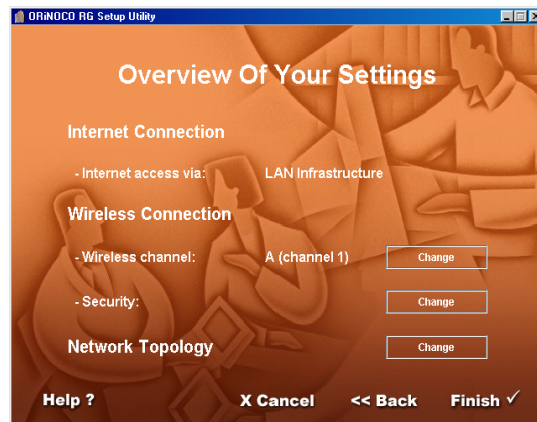
Internet Access via LAN Infrastructure

If you want to access the Internet through a LAN infrastructure, follow this procedure to configure your IG:

- 1 In the **Setup your Internet Connection** screen, select **LAN Infrastructure** under **Internet access via**. Click **Continue**.



- 2 Click **Continue** in the **Overview Of Your Settings** screen:



For information, click **Help**. If you want to change the settings in the dialog box, consult your network administrator.

3 Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

4 Click **Exit** in the **Ready!** screen:

You have configured your IG to serve as a transparent wireless bridge in a LAN infrastructure environment. Proceed below to Checking the IP Address.

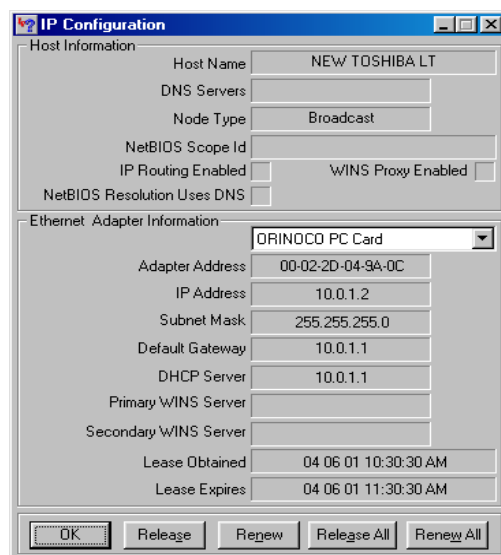
Checking the IP Address

Note: A computer on your network cannot communicate with any devices on that or another network or access the Internet if it has not been assigned an IP address. In the modes described in this manual (with the exception of LAN Infrastructure), a computer Client should receive an IP address from the IG. Therefore, you may want to make sure that your Client(s) is receiving an IP address through your IG.

To verify that a computer is receiving an IP address through the IG, do the following:

- 1** Click **Start | Run**.
- 2** In the **Run** dialog box, enter **winipcfg**. The **IP Configuration** dialog box opens.
- 3** Under **Ethernet Adapter Information**, select the correct adapter (for example, ZoomAir). The default IP address assigned to the wireless client through the IG is **10.0.1.x**.

- 4** If the computer is not registering an IP address, click **Release All** | **Renew All**. (See below.)



You have successfully installed and configured your IG-4150. Now you can use your wireless network or open your browser to access the Web through the IG-4150.

If you would like to maximize the security of your wireless network, please go to Chapter 5.

If you are having difficulty accessing the IG, please continue below.

If You Encounter Obstacles

If you have difficulty accessing the IG to view or modify its current settings:

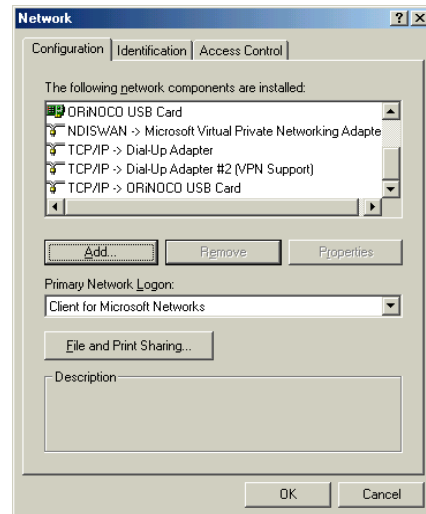
- View/Modify the settings of the wireless adapter in your computer to ensure that:

The Network Name matches the value printed on the label at the back of the IG.

The default WEP Encryption Key matches the last five digits of the Network Name (if you have not changed the default value).

- View/Modify the Networking properties on your computer to ensure that the TCP/IP protocol is installed for your wireless client adapter.

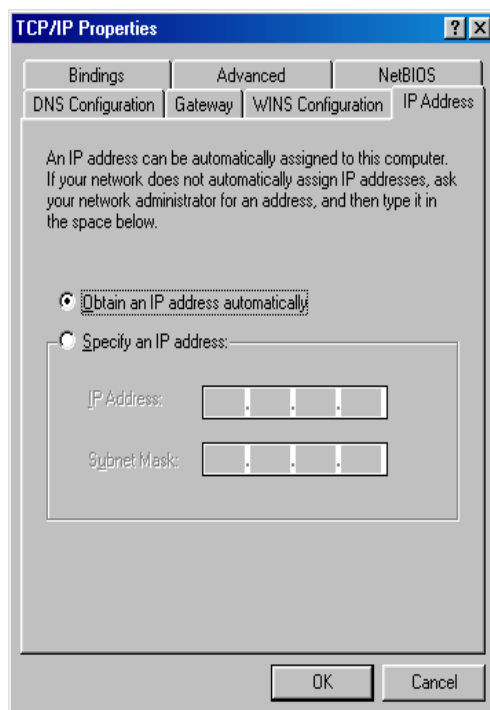
To do so, click **Start | Settings | Control Panel**. Double-click **Network**. Select **TCP/IP—>ZoomAir USB Card**. Make sure that the protocol is bound to the wireless product (see the last line in the screen below: **TCP/IP—>ORiNOCO USB Card**) to assign the wireless client adapter a valid IP address to access the IG.



If the protocol is not installed, click **Add**. Under **Manufacturers**, select **Microsoft**. Under **Network Protocols**, select **NetBEUI** or **TCP/IP** and click **OK**.

- View/Modify the Networking properties on your computer to ensure that the TCP/IP protocol has DHCP enabled to obtain an IP Address from the IG automatically.

To do so, click **Start | Settings | Control Panel**. Double-click **Network**. Select **TCP/IP—>ZoomAir USB Card** and click **Properties**. Under **IP Address**, select **Obtain an IP address automatically**.



- Consult your Microsoft documentation and/or Help system for information about setting the TCP/IP network protocol.

5

Configuring Custom Settings

Introduction

This chapter describes the IG-4150 custom settings, which allow you to maximize the security of your wireless network through the use of a WEP Encryption Key and a Setup Utility password.

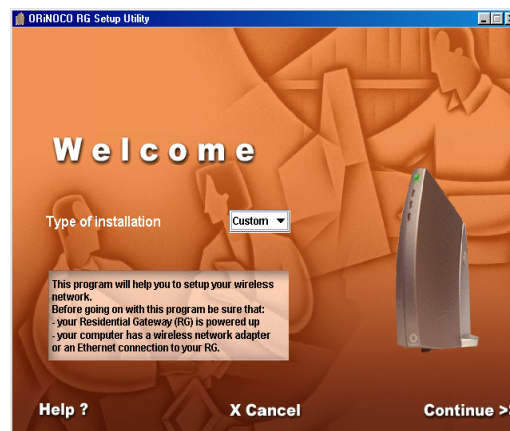
Customizing the Settings

To configure a custom setting, follow the procedure below:

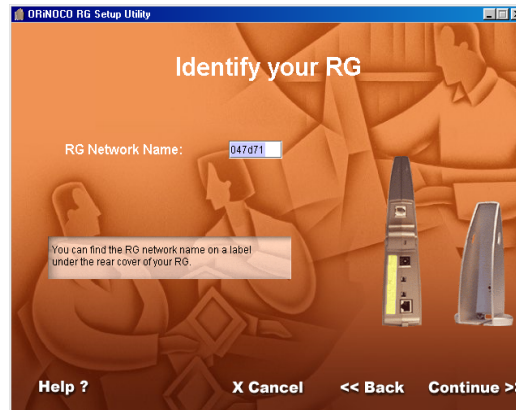
- 1 Double-click the **IG Setup Utility** icon on your desktop. The **Welcome** screen appears. For **Type of installation**, select **Custom** so that you can change the default WEP Encryption Key and set a password for the IG Setup Utility.

You can make this selection and decide not to change the default WEP Encryption Key and password.

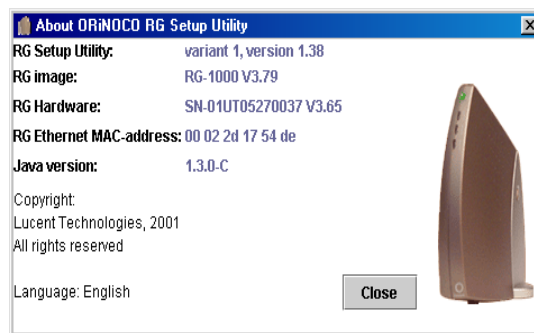
Click **Continue**.



- 2** In the **Identify your IG** screen, enter the ID number of your IG unit in the **IG Network Name** text box. The ID number is the 6-character Network Name printed on the bottom and back labels on the IG unit. Any letters in the ID must be lowercase. Click **Continue**.



- 3** After you have identified your IG, press the **F12** key to check your IG Ethernet MAC-address. The following window will open. Write down the MAC-address on the last page of this manual. Your cable service provider will ask for it, and you may need it if you contact Technical Support or Customer Service. Click **Close**.



In the **Setup your Internet Connection** screen, select the country in which you are located, and select a method of Internet access.

To configure your IG-4150, select a mode below, and go to the appropriate page.

- Cable modem (factory default mode; see below)
- Telephone line (see **page 38**)
- ADSL/PPPoE (see **page 41**)
- ISDN/DSL device (see **page 43**)
- LAN infrastructure (see **page 46**)

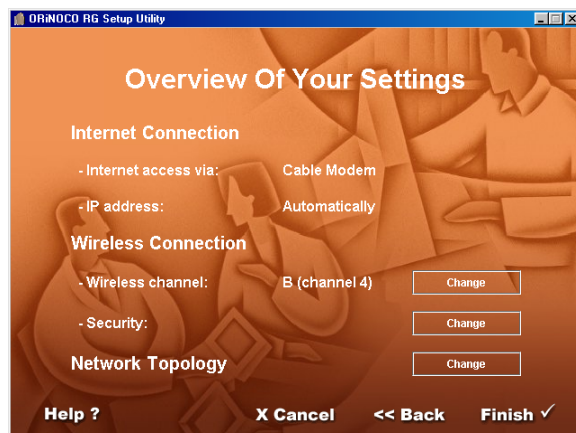
Internet Access via Cable Modem

If you want to access the Internet through a cable modem, follow this procedure to configure your IG:

- 1 In the **Setup your Internet Connection** screen, select **Cable Modem** under **Internet access via**, and then select **Automatic** under **IP address**. Click **Continue**.



2 The **Overview Of Your Settings** screen appears:



Setting the Wireless Channel

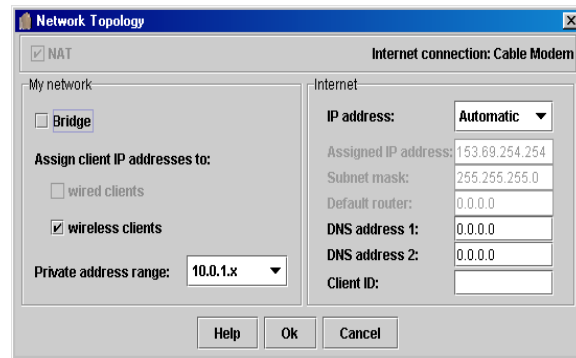
If you have difficulty connecting through the default channel, click the top **Change** button to select a different channel. See Technical Specifications on **page 61** for more information.

Configuring the Security Settings

Click the middle **Change** button to change the default WEP Encryption Key of your IG (the new string must contain five characters). Type a new Key in place of the default (see the section on Changing the Default WEP Encryption Key on **page 48** and the WEP Booklet). Select **Enable password** (disabled by default) and type a password to restrict access to the IG Setup Utility. If you want to reset the default values, click **Set defaults** and **Ok**. For maximum security, we recommend changing the default values.

Viewing the Network Topology Settings

To access your Network Topology settings, click the bottom **Change** button. The following dialog box opens:



3 Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

4 Click **Exit** in the **Ready!** screen:

You have configured your IG to access the Internet in the Cable Modem mode. Go to Checking the IP Address on **page 29**.

Internet Access via Telephone Line

If you want to access the Internet over a telephone line, the procedure for configuring your IG is as follows:

- 1 In the **Setup your Internet Connection** screen, select **Telephone Line** under **Internet access via**. The screen changes as follows:



ORINOCO RG Setup Utility

Setup your Internet Connection

I am in:

Internet access via:

Internet Service Provider Information

Your ISP:

Telephone number:

Account name:

Account password:

Connection Settings

Disconnect if idle for:

Dial using:

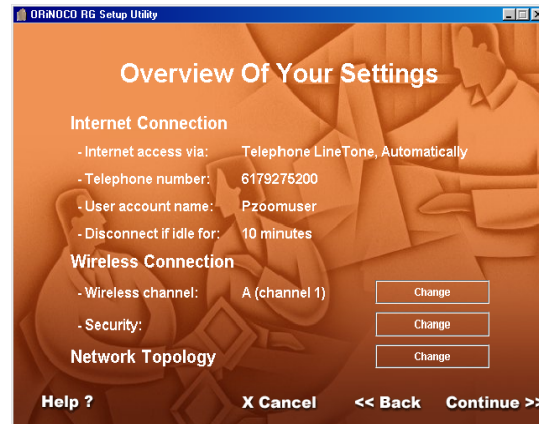
Automatic dialing:

Help ? **X Cancel** **<< Back** **Continue >>**

In the **Disconnect if idle for** drop-down menu, your options range from 1 to 40 minutes. Under **Dial using**, you can select **Tone** or **Pulse**. Finally, you can select automatic dialing. Click **Continue**.

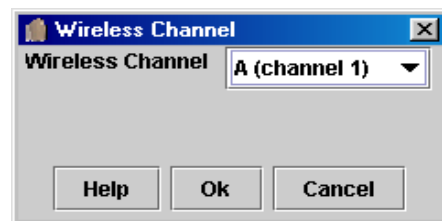
For additional information, click the **Help** button.

- 2** The **Overview Of Your Settings** screen appears, showing your current settings.



Setting the Wireless Channel

If you click the **Change** button next to **Wireless channel**, the following dialog box opens; the default is A (channel 1). If you have difficulty connecting through this channel, try a different one (see Technical Specifications on **page 61**).



Configuring the Security Settings

Click the **Change** button next to **Security** to change the default WEP Encryption Key of your IG (the new string must contain five characters).

There are two security settings that you can modify:

- the password to the IG Setup Utility itself (disabled by default)
- the WEP Encryption Key used by your wireless network

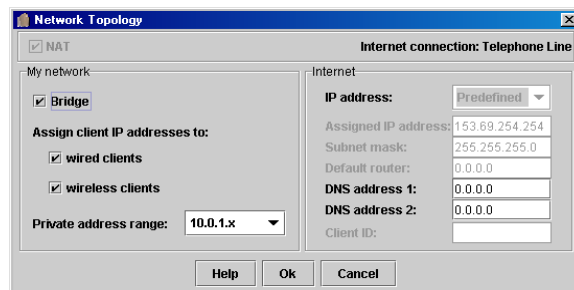
Type a new Key in place of the default (see the section Changing the Default WEP Encryption Key on **page 48** and the WEP Booklet). Select **Enable password** and type a password to restrict access to the IG Setup Utility. If you want to reset the default values, click **Set defaults** and **Ok**. (For maximum security, we recommend changing the default values.)



Note that it is advisable not to use the default value especially if you have an “always-on” connection, such as DSL or Cable.

Viewing the Network Topology Settings

To access your Network Topology settings, click the **Change** button next to **Network Topology**. For more information, click **Help**. If you want to make changes in the dialog box, consult your network administrator.



- 5** Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

6 Click **Exit** in the **Ready!** screen:

You have configured your IG for Internet access in the Telephone Line mode. Go to Checking the IP Address on **page 29**.

Internet Access via ADSL (PPPoE)

If you want to connect to the Internet using ADSL, follow this procedure:

1 In the **Setup your Internet Connection** screen, select **ADSL (PPPoE)** under **Internet access via**. The screen changes as follows:

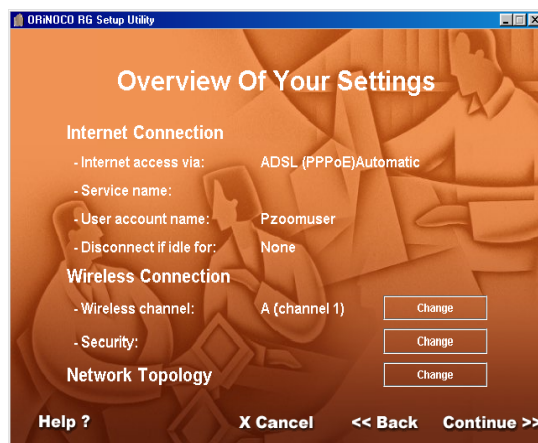


Under **Connection**, you can select **Automatic**, **Continuous**, or **On Request**.

Under **Disconnect if idle for**, your options range from 1-40 minutes. Click **Continue**.

For more information on these options, click **Help**.

- 2** The **Overview Of Your Settings** screen appears, showing your current settings.



Setting the Wireless Channel

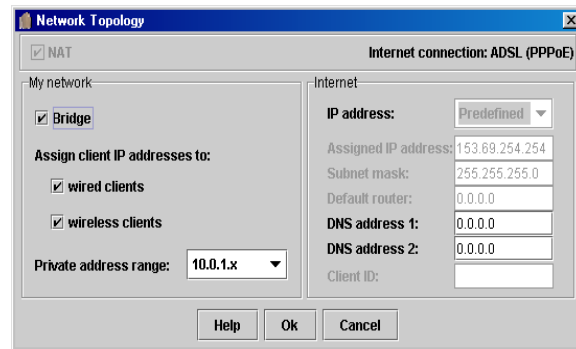
Click the top **Change** button to select a different channel if you have difficulty connecting through the default channel (see Technical Specifications on **page 61**).

Configuring the Security Settings

Click the middle **Change** button to change the default WEP Encryption Key of your IG (the new string must contain five characters). Type a new Key in place of the default (see the section Changing the Default WEP Encryption Key on **page 48** and the WEP Booklet). Select **Enable password** (disabled by default) and type a password to restrict access to the IG Setup Utility. If you want to reset the default values, click **Set defaults** and **Ok**. For maximum security, we recommend changing the default values.

Viewing the Network Topology Settings

To access your Network Topology settings, click the bottom **Change** button. The following dialog box opens:



For more information, click **Help**. If you want to change the settings in the dialog box, contact your network administrator.

3 Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

4 Click **Exit** in the **Ready!** screen:

You have configured your IG to access the Internet in the ADSL (PPPoE) mode. Go to Checking the IP Address on **page 29**.

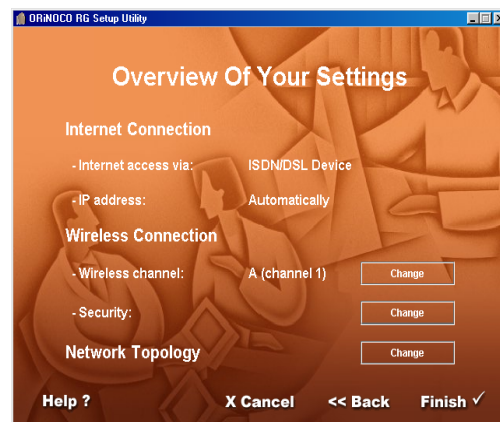
Internet Access via ISDN/DSL

If you want to access the Internet using an ISDN/DSL device, the procedure for configuring your IG is as follows:

- 1 In the **Setup your Internet Connection** screen, select **ISDN/DSL Device** under **Internet access via**, and then click **Automatic** under **IP address**. Click **Continue**.



- 2 The **Overview Of Your Settings** screen appears:



Setting the Wireless Channel

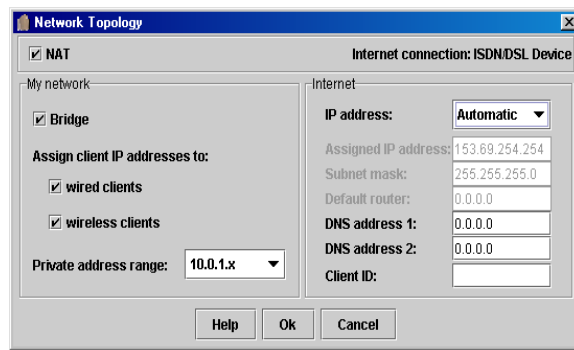
If you have difficulty connecting through the default channel, click the top **Change** button to select a different channel. For more information, see Technical Specifications on **page 61**.

Configuring the Security Settings

Click the middle **Change** button to change the default WEP Encryption Key of your IG (the new string must contain five characters). Type a new Key in place of the default (see the section Changing the Default WEP Encryption Key on **page 48** and the WEP Booklet). Select **Enable password** (disabled by default) and type a password to restrict access to the IG Setup Utility. If you want to reset the default values, click **Set defaults** and **Ok**. For maximum security, we recommend changing the default values.

Viewing the Network Topology Settings

To access your Network Topology settings, click the bottom **Change** button. The following dialog box opens:



For more information, click **Help**. If you want to change the settings in the dialog box, contact your network administrator.

- 3** Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

- 4** Click **Exit** in the **Ready!** screen:

You have configured your IG to access the Internet in the ISDN/DSL Device mode. Go to Checking the IP Address on **page 29** for an explanation of an important part of the configuration process.

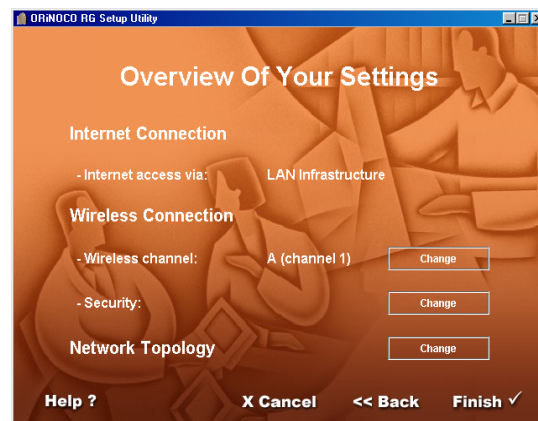
Internet Access via LAN Infrastructure

If you want to access the Internet through a LAN infrastructure, follow this procedure to configure your IG:

- 1 In the **Setup your Internet Connection** screen, select **LAN Infrastructure** under **Internet access via**. Click **Continue**.



- 2 The **Overview Of Your Settings** screen appears:



Setting the Wireless Channel

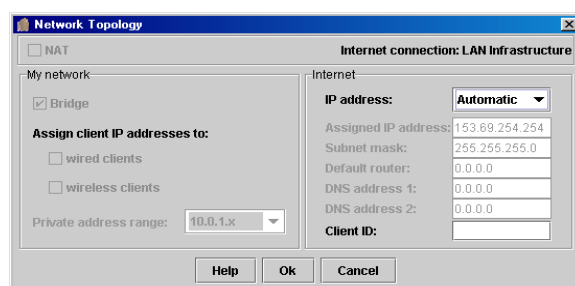
If you have difficulty connecting through the default channel, click the top **Change** button to select a different channel. For more information, see Technical Specifications on **page 61**).

Configuring the Security Settings

Click the middle **Change** button to change the default WEP Encryption Key of your IG (the new string must contain five characters). Type a new Key in place of the default (see the section Changing the Default WEP Encryption Key on **page 48** and the WEP Booklet). Select **Enable password** (disabled by default) and type a password to restrict access to the IG Setup Utility. If you want to reset the default values, click **Set defaults** and **Ok**.

Viewing the Network Topology Settings

To access your Network Topology settings, click the bottom **Change** button. The following dialog box opens:



For information, click **Help**. If you want to change the settings in the dialog box, consult your network administrator.

3 Before you click **Finish** in the **Overview Of Your Settings** screen, you can double-check all the IG settings. Use the **Back** button on the bottom of the screen to return to the previous screens.

4 Click **Exit** in the **Ready!** screen:

You have configured your IG to serve as a transparent wireless bridge in a LAN infrastructure environment. Go to Checking the IP Address on **page 29** for an explanation of an important part of the configuration process.

Changing the Default WEP Encryption Key

While selecting a mode for your IG-4150 and customizing its settings, you can change the default WEP Encryption Key to maximize the security of your wireless network.

Note: The IG-4150 has 64-bit Encryption enabled by default. Therefore, you must enable 64-bit Encryption on your Wireless Client.

Communication on your network is possible only among wireless computers and other devices using the same WEP Encryption Key (this key must be enabled). You can check and/or change the default WEP Encryption Key on your IG from a computer that has a Wireless Client installed.

If you have a ZoomAir IG and Wireless Client, the default WEP Encryption Key consists of the last five numbers of the ID number of your IG, which is indicated on the bottom and back labels of the IG unit (for example, if ID number = 01bc99 then default WEP Encryption Key = 1bc99). You can change the five characters in the WEP Encryption Key string on a ZoomAir IG to any other characters by selecting the **Custom** configuration option as described in the preceding sections (see Configuring Custom Settings, starting on **page 33**).

The IG ID number is also the Network Name, which serves as the SSID as well. You cannot change this value.

The ZoomAir IG-4150 always has 64-bit encryption enabled, and you cannot disable this feature. Therefore, any Wireless Client with which you want your IG to communicate also must use 64-bit encryption.

Note: If you are not using a ZoomAir IG-4150 with a ZoomAir USB Client-4115 or PC Card on your network, see the following section and the WEP Booklet for information on WEP interoperability. Otherwise, return to the Overview Of Your Settings screen in the IG Setup Utility to finish configuring the device.

WEP Interoperability Between Gateways and Wireless Clients

Note: For detailed information on WEP interoperability scenarios, refer to the WEP Booklet.

If you have a ZoomAir IG-4150 and Intersil Wireless Clients:

- 1** Determine the default WEP Encryption Key of the IG (the last five of the six characters in the Network Name – indicated on the back and bottom labels of the device).
- 2** Convert the IG WEP Encryption Key to Hex Keys, using the ASCII-to-Hex Conversion Chart in the WEP Booklet.
- 3** Set the Client Hex Keys to match the default WEP Encryption Key of the IG (consult the WEP Booklet).
- 4** Through the IG Utility on the Client, change the default WEP Encryption Key of the IG.
- 5** Set the Client's Hex Keys to match the new Key of the IG (Consult the WEP Booklet)
- 6** Set all Clients on the network to the same Hex Keys.

6

Using the IG-4150

General Guidelines

When using your IG-4150, please follow the guidelines listed below:

Safety Guidelines

Do not cover the unit or block the airflow to the unit. Keep the IG away from excessive heat and humidity. Protect the unit from vibration and dust. Always disconnect the IG power adapter before cleaning.

Operation Guidelines

To maximize the wireless coverage, place the unit as centrally as possible (depending on the wireless computer's vicinity). See also

Wall-Mount the IG-4150 on **page 52**.

The IG unit can be cleaned with a soft tissue. To avoid damage, do not use liquids like alcohol or acetone. Do not rinse the unit with fluids.

The IG consumes very little power. In order to extend the life of your IG it is better to leave the unit powered on.

Wall-Mount the IG-4150

If you want to mount the IG-4150 on the wall, proceed as follows:

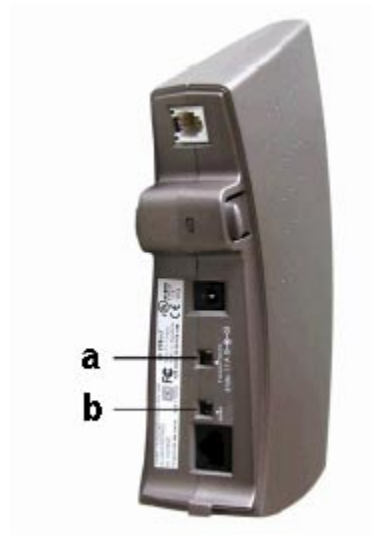
- 1** Remove the cover.
- 2** Use a small screwdriver to open the three cover screw holes.
- 3** Decide where and how you want to place the IG (you may consider mounting the unit upside down in an elevated location to be able to see the LEDs).
- 4** Place the cover against the wall, and put three marks on the wall to indicate the screw positions.
- 5** Use the screws and the plugs that came with your kit to fix the cover to the wall.
- 6** Close the IG.

IG-4150 Buttons

The IG unit has two small buttons for troubleshooting purposes.

- Reset button
- Reload button

Remove the cover from the IG unit to have access to these buttons.



Reset button

This button allows you to recover from a situation in which the IG may be in a deadlock situation. Pressing the button is the same as disconnecting the IG from the power supply source.

After the reset, the IG reverts to the previous configuration profile.



CAUTION: Pressing the reset button disables all network communications for a few minutes.

Reload button

Use this button only when you are not able to connect to your IG; for example, when you have forgotten the IG password or WEP Encryption Key.

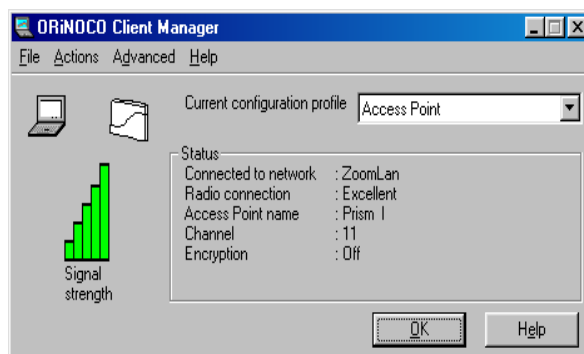
This button allows you to disable the WEP Encryption Key and the password. It also resets the DHCP settings of the device. Thus, you have temporary access to the IG without the correct password and WEP Encryption Key.



CAUTION: Pressing the Reload button changes the IG settings. To prevent irreversible changes, you must disable Encryption on your Wireless Client to access your IG in this forced Reload mode.

Follow this procedure to disable Encryption:

- 1** Use a small screwdriver to press the **Reload** button on your IG. The top LED on the IG changes from green to orange. This is the only LED that is lit in this mode.
- 2** Access the IG remotely through your Wireless Client by clicking the ZoomAir Client Manager icon on the taskbar in the lower right-hand corner of your desktop. The icon will be grayed out because you have pressed the **Reload** button on your IG.



- 3** From the **Actions** menu, select **Add/Edit Configuration Profile**, click the **Edit Profile** button, and clear the **Enable Data Security** checkbox. Click **OK**.

The Client Manager icon turns green again as a radio connection is established between your IG and your Wireless Client. You can now use the IG, bypassing the password and the WEP Encryption Key. To avoid risk of intrusion, do not leave your network without a WEP Encryption Key for long.

IG-4150 Special Modes

Special IG modes occur:

- After supplying power to the unit (powering up):
The IG automatically starts to operate within one minute.
See Powering Up the Unit on **page 10**.
- After finishing the configuration of the IG Setup Utility from your computer:
The new network settings are sent from your computer to the IG.
The IG restarts automatically within one minute.
- After pressing the Reset button:
The IG restarts and automatically returns to normal operation within one minute.
- After pressing the Reload button for 2 seconds:
The IG enters the Soft Reload mode for 5 minutes.

7

ZoneAlarm Firewall and AdSubtract

Your ZoomAir IG CD contains three additional programs, which increase Internet security on your network:

- ZoneAlarm Firewall
- ZoneAlarm Pro Firewall (30-day free trial)
- AdSubtract

To install any of these programs, from the Main Menu, click the **Internet/Security Software** button, then click the logo for the program you want to install, and follow the prompts. Install the programs on each computer separately.

ZoneAlarm, ZoneAlarm Pro, and AdSubtract support the following operating systems:

- Windows 98/98SE
- Windows Me
- Windows 2000

ZoneAlarm

ZoneAlarm, a self-configuring firewall, protects your computer from malicious programs like Spyware and trojan horses while you are connected to the Internet. It allows you to control the Internet traffic on your computer as well as how applications access the Internet.

ZoneAlarm provides “always-on” Internet security:

- Dynamic Firewall can block attempts to connect to your computer from the Internet.
- High Security Level makes your computer invisible from the Internet so you will not be a target for hackers and intruders.
- High Security Level also provides an easy way to configure the firewall, without requiring you to program protocols and ports.

After you have installed ZoneAlarm from your ZoomAir CD, you access, configure, and use the program through the ZoneAlarm icon that appears in your system tray. Double-click the icon to access the control panel (shown below):



Navigation and use are easy, with concise explanations of each component of the graphical user interface. Place your cursor over a button on your screen, and a pop-up description of the feature will appear.

ZoneAlarm and ZoneAlarm Pro

The following are the key features of ZoneAlarm and ZoneAlarm Pro; the latter program is an improved version of the former:

- Simplicity—you do not have to learn about protocols, ports, and firewall programming.
- Security—ZoneAlarm makes your computer invisible on the Web.

- Flexibility—ZoneAlarm/Pro allows you to customize your firewall for both local and Internet zones.
- Remote blocking—you can program the Internet lock to block all traffic when your computer is unattended.
- Control—you determine which applications can connect to the Internet or receive input from the Internet.
- Activity monitoring—ZoneAlarm alerts you of any Internet activity that can affect your computer while connected; the program allows you to stop any activity instantly.

The following are the additional features of ZoneAlarm Pro:

- Advanced MailSafe—prevents e-mail viruses and other potentially dangerous e-mail attachments by checking 37 suspect attachment types; you can also customize additional suspect attachment types.
- Password protection—makes your security settings tamperproof.
- ICS (Internet Connection Sharing) capability—Allows configuration of an ICS network.
- Logging of intrusion attempts—helps you organize and maintain a data list of attempted intrusions by automatically archiving them to a directory.
- Control over the restricted zone—you can restrict access to your computer from individual computers or groups of computers.
- Advanced firewall control—lets you further customize your local and Internet security zones by enabling NAT and by blocking or allowing NetBIOS, DHCP, DNS, and ICMP.

AdSubtract

The standard edition of AdSubtract, which is available on your ZoomAir CD, blocks Internet ads and cookies. To install AdSubtract, from the Main Menu, click the **Internet/Security Software** button, then click the AdSubtract logo. Follow the prompts.

The following are some of the features of AdSubtract:

- Speeds up Web surfing by eliminating ads
- Enhances online privacy by blocking cookies
- Monitors the number of ads and cookies it blocked
- Works with any connection to the Web: dial-up modems, cable modems, LAN or DSL connections
- Works with all browsers: Internet Explorer, Netscape, AOL, and Opera
- Configures all browsers automatically
- Installs in approximately 30 seconds

Appendix A

IG-4150 Specifications

Technical Specifications

Compatibility	IEEE 802.11b Standard for high-speed wireless LANs.
Bit Error Rate	Better than 10^{-5} .
Range	Up to 550 meters.
Frequency Band/Channels	2.4 GHz Selectable Channels: —Channel 1 (or A): 2412 MHz —Channel 4 (or B): 2427 MHz —Channel 7 (or C): 2442 MHz —Channel 10 (or D): 2457 MHz
Encryption	64-bit Wired Equivalent Privacy (WEP) based on the RC4 algorithm.

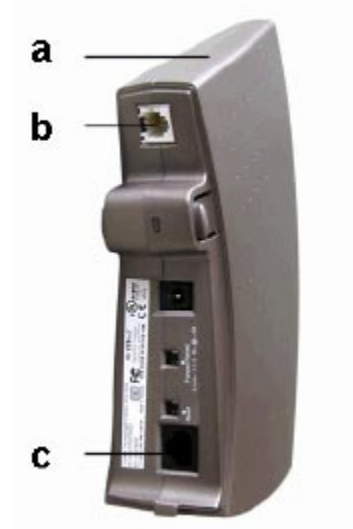
Power Specifications

Input Voltage to IG-4150	9V DC
Input Voltage Power Adapter	100V AC to 240V AC +/- 10%
Power Adapter Frequency	47 to 63 Hz

Interfaces (built-in)

a	ZoomAir wireless interface
b	56K V.90 modem RJ-11 connector (female) 1.8 m/6 ft. cable (included)
c	10BaseT Ethernet (wired as DTE) RJ-45 connector (female) Cable not included Use straight-through Ethernet cable to connect the device to external modems (for example, ISDN, ADSL, or Cable) or to a Network Hub.

Note: Ethernet modems are wired as DCE.



Physical Specifications

	IG-4150	Power Adapter
Dimensions (HxWxL)	208 x 52 x 155mm	78 x 48 x 75mm
Weight	350g	—
Operating Temperature	0 to +40°C	0 to +50°C
Storage Temperature	-10 to +50°C	-20 to +85°C
Humidity	max. 95% (non-condensing)	20 to 90%
Barometric Pressure	740 to 1050 hPa	—

Radio Specifications

Radio Output Power	15 dBm (nominal)			
Spreading	11-chip Barker sequence			
Wireless Data Rate				
Environment	11Mb/s	5.5Mb/s	2Mb/s	1Mb/s
Max. range	160m (525ft.)	270m (885ft.)	400m (1300ft.)	550m (1750ft.)
Modulation technique	DSSS CCK	DSSS CCK	DSSS DQPSK	DSSS DBPSK
Receiver sensitivity (for BER = 10 ⁻⁵)	-82 dBm	-87 dBm	-91 dBm	-94 dBm
Delay Spread (at FER of <1%)	65 ns	225 ns	400 ns	500 ns

The device automatically selects the best data rate for the current radio connection.

Note: The range values provide a rule of thumb and may vary according to the actual radio conditions at the location where the product is installed. The range of your wireless devices can be affected when:

- Antennas are placed near metal surfaces and solid high-density materials.
- The radio signal is absorbed by obstacles or objects; for example, in areas with floor to ceiling walls, the range can be decreased to 15% on its maximum value.

Appendix B

Upgrading the Firmware

Your ZoomAir IG-4150 requires minimal user involvement in firmware upgrading. (Firmware is also known as embedded software.)

When you install the IG Setup Utility, it verifies the existing version of the firmware and replaces it if a more recent version is available.

The IG Setup Utility with the latest version of the firmware is available on your ZoomAir CD.

Appendix C

Internet Service Provider Information

When you obtain an account with a Dial-Up Internet Service Provider (ISP), you typically receive the following information:

- Telephone numbers to dial in to your ISP (Wireless Internet Access via Telephone Line)
- Account Name (or User Name)
- Account Password (or User Password)

Depending on the type of Internet account you have, you may receive additional settings that you might need to enter in the IG configuration.

If your ISP is a cable or DSL provider, he or she may need to know your Ethernet MAC address, which is available only when you are running the IG Setup Utility. The IG ID number is the last 3 bytes of the radio MAC address. This number is shown on the exterior labels on your ZoomAir IG.

To obtain the Ethernet MAC address, you must run the IG Setup Utility, access the IG, and press the **F12** key.

Appendix D

Regulatory Information

FCC Part 15 Emissions Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Part 68 Statement

This equipment complies with Part 68 of the FCC rules. The unit bears a label which contains the FCC registration number and Ringer Equivalence Number (REN). If requested, this information must be provided to the telephone company.

This equipment uses the following standard jack types for network connection: RJ11C.

This equipment contains an FCC-compliant modular jack. It is designed to be connected to the telephone network or premises wiring using compatible modular plugs and cabling which comply with the requirements of FCC Part 68 rules.

The Ringer Equivalence Number, or REN, is used to determine the number of devices that may be connected to the telephone line. An excessive REN may cause the equipment to not ring in response to an incoming call. In most areas, the sum of the RENs of all equipment on a line should not exceed five (5.0).

In the unlikely event that this equipment causes harm to the telephone network, the telephone company can temporarily disconnect your service. The telephone company will try to warn you in advance of any such disconnection, but if advance notice isn't practical, it may disconnect the service first and notify you as soon as

possible afterwards. In the event such a disconnection is deemed necessary, you will be advised of your right to file a complaint with the FCC.

From time to time, the telephone company may make changes in its facilities, equipment, or operations that could affect the operation of this equipment. If this occurs, the telephone company is required to provide you with advance notice so you can make the modifications necessary to obtain uninterrupted service.

U.S. REPAIR CENTER INFORMATION:

Zoom Telephonics, Inc.
645 Summer Street
Boston, MA 02210
USA

Telephone Number: (617) 423 1072

Facsimile Number: (617) 542 8276

There are no user serviceable components within this equipment.

It shall be unlawful for any person within the United States to use a computer or other electronic device to send any message via a telephone facsimile unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine or of such business, other entity, or individual. The telephone number provided may not be a 900 number or any other number for which charges exceed local or long distance transmission charges. Telephone facsimile machines manufactured on and after December 20, 1992, must clearly mark such identifying information on each transmitted message. Facsimile modem boards manufactured on and after December 13, 1995, must comply with the requirements of this section.

This equipment cannot be used on public coin phone service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. Contact your state public utility commission, public service commission, or corporation commission for more information.

Declaration of Conformity

The manufacturer declares under sole responsibility that this equipment is compliant to Directive 1999/5/EC (R&TTE Directive) via the following standards:

Standards

EN 60950

ETS 300 328 : 1996

ETS 300 826 : 1997

The product is CE Marked.

FCC Warning

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Caution: For the purpose of satisfying FCC RF exposure compliance requirements, antennas should be positioned in such a way that a separation distance of at least 20cm is maintained between the transmitter's radiating structures and the body of the user or nearby persons.

FCC Part 15 C Statement

This equipment is approved under Subpart C of FCC Part 15, under the FCC Identifier IMRWLPCE24H.

Department of Commerce End User Statement

This item falls under the jurisdiction of the Department of Commerce, and as such, the requirement set forth in section 740-17 of the Export Administration Regulation must be complied with. See the following Web sites for more information:

- ❑ Bureau of Export Administration
http://www.bxa.doc.gov/DPL/2_denial.htm
<http://www.bxa.doc.gov/Entities/>
- ❑ Code of Federal Regulations
http://www.access.gpo.gov/bxa/car/ear_data.html

Federal law prohibits the sale or distribution of certain products to certain individuals and organizations. Denied persons or organizations may not, directly or indirectly, participate in any way in any transaction involving any commodity, software or technology exported or to be exported from the United States that is subject to Export Administration Regulations. The above Web sites provide a detailed list of individuals and organizations that have been determined to present an unacceptable risk of diversion to developing weapons of mass destruction or missiles used to deliver those weapons.

Intended Use

The intended use for this RLAN equipment is operation in the 2.4GHz frequency band.

Customer Service Information

We recommend that you take a few moments to fill in the following information for future reference. In the event you need to call Technical Support or Customer Service, you will need the information below.

ZoomAir Model

(located on the box)

Serial Number

(located on the device)

Network Name

(located on the device)

Ethernet MAC Address

Date of Purchase

Store or Dealer
